

CLAIMS

1. A sealing assembly for use in a pipe coupling assembly of the type adapted to engage an end of a pipe having an exposed metal surface, said sealing assembly including a pipe receiving member adapted to sealably receive the end of the pipe to thereby prevent contact of the exposed metal surface with liquid travelling through the pipe, said sealing assembly further including an O-ring that is adapted to provide a seal between the pipe and the pipe coupling assembly wherein the sealing assembly is adapted to be positioned within the pipe coupling assembly so that the pipe receiving member is located in a position rearwards of the O-ring.
2. A sealing member for use in a pipe coupling assembly of the type adapted to engage an end of a pipe having an exposed metal surface, said sealing member including a pipe receiving portion adapted to sealably receive the end of the pipe to thereby prevent contact of the exposed metal surface with liquid travelling through the pipe, said sealing member further including an O-ring portion that is adapted to provide a seal between the pipe and the pipe coupling assembly wherein the sealing member is integrally formed and adapted to be positioned within the pipe coupling assembly so that the pipe receiving portion is located in a position rearwards of the O-ring portion, the pipe receiving portion and O-ring portion being joined by an annular wall of predetermined longitudinal length.
3. A sealing member as in claim 2 wherein the O-ring portion extends substantially outwardly from the annular wall and said pipe receiving portion extends substantially inwardly from the annular wall.
4. A sealing member as claim 2 or claim 3 wherein the pipe receiving portion is in the form of an annular channel including a base surface which extends inwardly from the annular wall substantially perpendicularly to the longitudinal axis of the coupling, said base surface adapted to abut with the exposed metal surface of the pipe end when the pipe is fully received within the pipe receiving portion.
5. A sealing member as in claim 4 wherein the pipe receiving portion further includes an internal wall defining a central bore of the sealing member, said internal wall extending forwardly from the internal edge of the base surface so that when the pipe end is fully received within the pipe receiving portion, the internal wall lines the internal edge of the pipe end.
6. A sealing member as in any claim 4 or claim 5 wherein when the pipe end is fully received within the pipe receiving portion of the sealing member, the base surface and internal wall of the pipe

receiving portion serve to prevent contact of liquid travelling through the central bore of the sealing member with the exposed metal surface of the pipe end.

7. A sealing member as in any one of claims 2 to 6 wherein the rearward end is substantially cylindrical and includes a plurality of tetrahedrally shaped grooves disposed radially thereabout.

5 8. A pipe coupling assembly for connection of a pipe having an end with exposed metal, said pipe coupling assembly including:

a hollow body having an external thread extending at least in part therealong;

a nut threadably engaging said body external thread;

a sealing member including a pipe receiving portion; and

10 a deformable gripping member wherein upon tightening of said nut, a force is exerted on the gripping member both in the longitudinal and radial directions to thereby cause the gripping member to engage the pipe and drag it into the body so that the end of the pipe is received within the pipe receiving portion of the sealing member.

15 9. A pipe coupling assembly as in claim 8 wherein the hollow body includes an inner surface and a gripping member abutment surface disposed rearwardly from the inner surface.

10. A pipe coupling assembly as in claim 8 or claim 9 wherein the sealing member further includes an O-ring portion adapted to sit between the gripping member abutment surface and the gripping member, said O-ring portion adapted to compress when said longitudinal force is applied to the gripping member.

20 11. A pipe coupling assembly as in claim 10 wherein the sealing member is an integrally formed structure whereby the pipe receiving portion is disposed rearwardly from the O-ring portion and joined by an annular wall of predetermined length.

25 12. A pipe coupling assembly as in any one of claims 8-11 wherein the pipe receiving portion is in the form of an annular channel including a base surface which extends inwardly from the annular wall substantially perpendicularly to the longitudinal axis of the coupling, said base surface adapted to abut with the exposed metal surface of the pipe end when the pipe is fully received within the pipe receiving portion.

30 13. A pipe coupling assembly as in any one of claims 8-12 wherein the pipe receiving portion further includes an internal wall defining a central bore of the sealing member, said internal wall extending forwardly from the internal edge of the base surface so that when the pipe end is fully

received within the pipe receiving portion, the internal wall lines the internal edge of the pipe end.

5 14. A pipe coupling assembly as in any one of claims 8-13 wherein the nut includes at one end an internal thread co-operable with said body external thread and including a hooked projection adapted to extend over at least part of said body inner surface said projection including a first inner surface generally parallel to said body inner surface, a second outwardly converging surface extending from the inner edge of said inner surface.

10 15. A pipe coupling assembly as in any one of claims 8-14 wherein the deformable gripping member includes a first surface generally parallel to said body inner surface and having a second outwardly converging outer surface extending from said first surface, said gripping member including radially inward barbs.

15 16. A pipe coupling assembly as in any one of claims 8-15 wherein the gripping member moves sufficiently radially inwardly that the gripping member second surface is caused to slide inwardly against the nut second surface until in a fixed position at which time the body reinforces the nut against any radial force.

17. A pipe coupling assembly as in any one of claims 8-16 wherein the gripping member may be in the form of a collet that is split.

20 18. A pipe coupling assembly as in any one of claims 8-17 wherein the slope of the gripping member second surface is smaller than the slope of the nut second surface and is selected so that when the nut engages the gripping member and forces it into the body thereby compressing it, the slope of the gripping member second surface is generally the same as the nut second surface.

19. A pipe coupling assembly as in any one of claims 8-18 wherein the slope of the gripping member second surface in its rest state is some 37 degrees, the slope of the nut second surface some 45 degrees.

25 20. A pipe coupling assembly as in any one of claims 8-19 wherein said nut further includes an annular shoulder extending radially inwardly from the edge of said nut second surface, said stop adapted to be abutted by said gripping member when in its compressed state to thereby provide a resistive force for the gripping member moving longitudinally out of the body.

21. A pipe coupling assembly as in any one of claims 8-20 wherein the width of said nut second surface is greater than the width of the gripping member second surface to thereby accommodate said gripping member second surface sliding alongside said nut second surface as the nut is tightened whilst full surface contact between the two surfaces is maintained.
- 5 22. A pipe coupling assembly as in any one of claims 8-21 wherein the width of said nut second surface is some $\frac{1}{3}$ greater than the width of the gripping member second surface.

ABSTRACT

The present invention relates to a sealing member for use in a pipe coupling assembly and, in particular, to a sealing member for sealing the end of a pipe having an exposed metal surface at its end, such as pipes comprising an internal metal sheath which is lined internally and externally with plastic.

- 5 The sealing member includes a pipe receiving portion adapted to receive the end of the pipe to thereby prevent contact between the end of the pipe and fluid travelling through the pipe. The sealing member may be used in standard pipe couplings, or is preferably incorporated into a coupling having a deformable gripping member whereby upon tightening of the coupling assembly nut, the gripping member urges against the pipe both radially and longitudinally to thereby simultaneously grip the pipe and urge the pipe
- 10 end within the pipe receiving portion.